

Journal of

159

INVERTEBRATE PATHOLOGY

*. . . devoted to the pathology and microbiology
of insects and other invertebrates*

Volume 10, 1968

Editor-in-Chief

EDWARD A. STEINHAUS

Editorial Board:

F. T. BIRD

W. A. L. DAVID

S. M. GERSHENSON

ALOIS M. HUGER

B. HURPIN

CARLO M. IGNOFFO

SHIGEMI KAWASE

WILLIAM R. KELLEN

GEORGE O. POINAR, JR.

W. A. SMIRNOFF

ALBERT K. SPARKS

VICTOR SPRAGUE

LESLIE A. STAUBER

ALAN E. STIVEN

Editorial Assistant: GORDON A. MARSH

Published under the Auspices of the Society for Invertebrate Pathology



ACADEMIC PRESS

NEW YORK AND LONDON

Copyright ©, 1968 by Academic Press Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means without written permission from the publishers.

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 10

NUMBER 1, FEBRUARY 1968

EDITORIAL: Hungry People and Invertebrate Pathology	i
GILBERT B. PAULEY AND CLYDE S. SAYCE. An Internal Fibrous Tumor in a Pacific Oyster <i>Crassostrea gigas</i>	1
R. SLUSS. Behavioral and Anatomical Responses of the Covergent Lady Beetle to Parasitism by <i>Perilitus coccinellae</i> (Schrank) (Hymenoptera: Braconidae)	9
OSWALD N. MORRIS. Metabolic Changes in Diseased Insects. I. Autoradiographic Studies on DNA Synthesis in Normal and in Polyhedrosis-Virus-Infected Lepidoptera	28
Y. TANADA AND RUTH LEUTENEGER. Histopathology of a Granulosis-Virus Disease of the Codling Moth, <i>Carpocapsa pomonella</i>	39
GRANT ST. JULIAN AND HARLOW H. HALL. Infection of <i>Popillia japonica</i> Larvae with Heat-Activated Spores of <i>Bacillus popilliae</i>	48
ERIK RIFKIN AND THOMAS C. CHENG. The Origin, Structure, and Histochemical Characterization of Encapsulating Cysts in the Oyster <i>Crassostrea virginica</i> Parasitized by the Cestode <i>Tylocephalum</i> sp.	54
THOMAS C. CHENG AND ERIK RIFKIN. The Occurrence and Resorption of <i>Tylocephalum</i> Metacestodes in the Clam <i>Tapes semidecussata</i>	65
M. M. NEILSON AND D. E. ELGEE. Tumorlike Bodies in Virus-Infected and Noninfected Adults of the Spruce Sawfly, <i>Diprion hercyniae</i>	70
T. DON CANERDAY. On Cross Infectivity of the Cabbage-Looper Nuclear-Polyhedrosis Virus to Some Related Plusiinae (Noctuidae: Lepidoptera)	76
Y. TANADA AND GRACE Y. CHANG. Resistance of the Alfalfa Caterpillar, <i>Colias eurytheme</i> , at High Temperatures to a Cytoplasmic-Polyhedrosis Virus and Thermal Inactivation Point of the Virus	79
P. V. VAIL, T. J. HENNEBERRY, A. N. KISHABA, AND K. Y. ARAKAWA. Sodium Hypochlorite and Formalin as Antiviral Agents Against Nuclear-Polyhedrosis Virus in Larvae of the Cabbage Looper	84
S. Y. FENG AND L. A. STAUBER. Experimental Hexamitiasis in the Oyster <i>Crassostrea virginica</i>	94
JERZY J. LIPA. <i>Nosema leptinotarsae</i> sp. n., a Microsporidian Parasite of the Colorado Potato Beetle, <i>Leptinotarsa decemlineata</i> (Say)	111
WILLIAM G. YENDOL. Factors Affecting Germination of <i>Entomophthora</i> Conidia	116

CONTENTS OF VOLUME 10

M. ELISA PEROTTI AND AURELIO BAIRATI, JR. Ultrastructure of the Melanotic Masses in Two Tumorous Strains of <i>Drosophila melanogaster</i> (<i>tu B₃</i> and <i>Freckled</i>)	122
J. F. LONGWORTH AND K. A. HARRAP. A Nonoccluded Virus Isolated from Four Saturniid Species	139
A. P. ARTHUR. Further Information on the Control of the Introduced European Skipper, <i>Thymelicus lineola</i> , with <i>Bacillus thuringiensis</i>	146
RONALD R. COWDEN. Cytological and Histochemical Observations on Connective Tissue Cells and Cutaneous Wound Healing in the Sea Cucumber <i>Stichopus badionotus</i>	151

NOTES

ROBERT M. FAUST, EDWARD M. DOUGHERTY, AND JEAN R. ADAMS. Nucleic Acid in the Blue-Green and Orange Mosquito Iridescent Viruses (MIV) Isolated from Larvae of <i>Aedes taeniorhynchus</i> ...	160
GEORGE E. CANTWELL, ROBERT M. FAUST, AND H. K. POOLE. Attempts to Cultivate Insect Viruses in Avian Eggs	161
BOOK REVIEW	163

NUMBER 2, MARCH/APRIL 1968

IRMA V. ISSI AND JERZY J. LIPA. <i>Gurleya sokolovi</i> sp. n., a Microsporidian Parasite of the Water Mite <i>Limnochares aquatica</i> (Linnaeus) (Acarina: Hydrachnellae), and a Note on a Gregarine Infection in the Same Mite	165
JOHN C. HARSHBARGER AND ARTHUR M. HEIMPEL. Effect of Zymosan on Phagocytosis in Larvae of the Greater Wax Moth, <i>Galleria mellonella</i>	176
R. E. GINGRICH. A Flotation Procedure for Producing Spore-Free Crystals from Commercial Formulations of <i>Bacillus thuringiensis</i> var. <i>thuringiensis</i>	180
D. B. MACLEAN AND R. L. GIESE. Fungi Associated with <i>Xyloterinus politus</i> (Say) (Coleoptera: Scolytidae)	185
EDWARD A. STEINHAUS AND REGINA D. ZEIKUS. Teratology of the Beetle <i>Tenebrio molitor</i> I. Gross Morphology of Certain Abnormality Types ..	190
GERTRAUDE WITTIG. Phagocytosis by Blood Cells in Healthy and Diseased Caterpillars III. Some Observations Concerning Virus Inclusion Bodies	211

MARTIN SHAPIRO. Pathologic Changes in the Blood of the Greater Wax Moth, <i>Galleria mellonella</i> , During the Course of Nucleopolyhedrosis and Starvation II. Differential Hemocyte Count	230
G. E. BUCHER AND P. HARRIS. Virus Diseases and their Interaction with Food Stress in <i>Calophasia lunula</i>	235
D. L. CHAMBERS. Effect of Ionic Concentration on the Infectivity of a Virus of the Citrus Red Mite, <i>Panonychus citri</i>	245
B. HURPIN. The Influence of Temperature and Larval Stage on Certain Diseases of <i>Melolontha melolontha</i>	252
ALBERT C. SMITH AND RONALD L. TAYLOR. Tumefactions (Tumorlike Swellings) on the Foot of the Moon Snail <i>Polinices lewisii</i>	263
JEAN E. STANIER, M. A. WOODHOUSE, AND R. L. GRIFFIN. Light- and Electron-Microscopic Observations on the Metacercaria of a <i>Spelotrema</i> sp. (Trematoda: Microphallidae) Encysted in <i>Carcinus maenas</i>	269
A. M. AFIFY. Bioassay of "Biospore 2802" Using Two Species of Lepidopterous Larvae of Different Susceptibility Levels	283
FRANK O. PERKINS. Fine Structure of the Oyster Pathogen <i>Minchinia nelsoni</i> (Haplosporida, Haplosporidiidae)	287
JAMES E. MILSTEAD. Changes in Weight and Hemolymph Total Solids Resulting from Starvation in the Sixth Instar of <i>Peridroma saucia</i> and <i>Pseudaletia unipuncta</i> (Lepidoptera: Noctuidae)	306
WILLIAM G. YENDOL, ELIZABETH M. MILLER, AND CHARLES N. BEHNKE. Toxic Substances from Entomophthoraceous Fungi	313
JOHN J. HAMM. Comparative Histopathology of a Granulosis and a Nuclear Polyhedrosis of <i>Spodoptera frugiperda</i>	320
J. D. PASCHKE, R. E. LOWE, AND R. L. GIESE. Bioassay of the Nucleopolyhedrosis and Granulosis Virus of <i>Trichoplusia ni</i>	327
HARVEY RABIN AND JOHN T. HUGHES. Studies on Host-Parasite Relationships in Gaffkemia	335
P. F. ENTWISTLE AND J. S. ROBERTSON. Rickettsiae Pathogenic to Two Saturniid Moths	345
R. H. JAFRI. The Susceptibility of Irradiated Larvae of <i>Galleria mellonella</i> to VND Virus	355
J. F. LONGWORTH AND J. C. CUNNINGHAM. The Activation of Occult Nuclear-Polyhedrosis Viruses by Foreign Nuclear Polyhedra	361

C. S. CREIGHTON, F. P. CUTHBERT, JR., AND W. J. REID, JR. Susceptibility of Certain Coleopterous Larvae to the DD-136 Nematode	368
RICHARD L. BEAUDOIN AND WILLIAM WILLIS. <i>Haplosporidium simulii</i> sp. n. (Haplosporida: Haplosporidiidae), Parasitic in Larvae of <i>Simulium venustum</i> Say	374
J. M. PERRON, AND GEORG BENZ. Effects of Yeast and Yeast Fractions on the Action of the So-Called Heat-Stable Exotoxin of <i>Bacillus thuringiensis</i> in <i>Drosophila melanogaster</i>	379
D. K. HUNTER. Response of Populations of <i>Chironomus californicus</i> to a Microsporidian (<i>Gurleya</i> sp.)	387
M. A. VECCHI AND G. GIORDANI. Chemotherapy of Acarine Disease I. Laboratory Tests	390
W. A. SMIRNOFF. Diseases of the Larch Sawfly, <i>Pristiphora erichsonii</i> , in Quebec	417

NOTES

D. G. GRISDALE. A Method for Reducing Incidence of Virus Infection in Insect Rearings	425
M. L. SAHNI. A Preliminary Report of an Entomogenous Fungus, <i>Entomophthora exitialis</i> on the Wheat Aphid, <i>Rhopalosiphum maidis</i>	425
PETER P. SIKOROWSKI AND CLIFFORD H. MADISON. The Effects of <i>Bacillus sphaericus</i> , Strain 8b, on the Clear Lake Gnat, <i>Chaoborus astictopus</i>	426
A. KRIEG, H. DE BARJAC, AND A. BONNEFOI. A New Serotype of <i>Bacillus thuringiensis</i> Isolated in Germany: <i>Bacillus thuringiensis</i> var. <i>darmstadiensis</i>	428
CARLO M. IGNOFFO AND CLEMENTE GARCIA. Formalin Inactivation of Nuclear-Polyhedrosis Virus	430
R. PETER KERNAGHAN AND LEE EHRMAN. Filamentous Inclusions in the Paragonia of <i>Drosophila paulistorum</i>	432
A. SANNASI. Apparent Infection of Queens and Drones of the Mound-Building Termite <i>Odontotermes obesus</i> by <i>Aspergillus flavus</i>	434
W. A. SMIRNOFF. A Nuclear Polyhedrosis of the Mountain-Ash Sawfly, <i>Pristiphora geniculata</i>	436
RAIMON L. BEARD. Mycotoxin: A Cause of Death in Milkweed Bugs ..	438
G. RAMASESHIAH. <i>Entomophthora fresenii</i> , Parasitic on Aphids in India ..	439

CONTENTS OF VOLUME 10

JOHN V. THOMPSON AND LEONARD M. REDLINGER. Isolation of a Nuclear-Polyhedrosis Virus from the Almond Moth, <i>Cadra cautella</i>	441
E. Y. SPENCER. Comparative Amino Acid Composition of the Parasporal Inclusions of Five Entomogenous Bacteria	444
G. R. SUTTER AND V. M. KIRK. Rickettsialike Particles in Fat-Body Cells of Carabid Beetles	445
N. RAMAKRISHNAN. Observations on the Toxicity of <i>Bacillus thuringiensis</i> for the Silkworm <i>Bombyx mori</i>	449
M. V. NAGAMMA AND S. K. MAJUMDER. A Schizogregarine Disease of Larvae of the Almond Moth, <i>Ephestia cautella</i>	450

LETTERS TO THE EDITOR

MARTIN H. ROGOFF. Usefulness of a Newly Proposed Key for Species of "Crystalliferous Bacteria"	453
A. M. HEIMPEL. Reply to M. H. Rogoff	454

BOOK REVIEWS	457
--------------------	-----

ANNOUNCEMENT	460
--------------------	-----

AUTHOR INDEX	461
--------------------	-----

SUBJECT INDEX	462
---------------------	-----

